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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/080,785	02/22/2002	David J. Leidel	1301-1125	2977

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EXAMINER	
JENKINS, DANIEL J	

ART UNIT	PAPER NUMBER
1742	

DATE MAILED: 03/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/080,785	LEIDEL ET AL.	
	Examiner	Art Unit	
	Daniel J. Jenkins	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 November 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-12,14-25,29-41 and 45-60* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-12,14-25,29-41 and 45-60* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. The Examiner has carefully considered Applicant's response of 11/21/05. The Examiner agrees with Applicant's statement of Mravic et al., that the reference fails to teach the high W range. At this time, the Examiner makes a new rejection which is accordingly not made final.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 2 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schzerzenie et al.

Schzerzenie et al. discloses the invention substantially as claimed. Schzerzenie et al. discloses a shaped charge liner comprising:

a heavy metal constituent comprising W powder in an amount of 97-97% (Table 1);

a binder metal constituent comprising a second metal powder in an amount of 3-5% (Table 1, the combined amount of Ni+Fe); and

a wax (Table 1).

The Examiner finds that the wax reads upon the broader term lubricant.

The overlap of ranges establishes a prima facie case of obviousness.

4. Claims 8, 9, 10, 15 and16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schzerzenie et al. in view of Reese et al.

Schzerzenie et al. discloses the invention substantially as claimed. However, Schzerzenie et al. is silent as to the shape of the liner.

Reese et al. teaches that shaped charge liners are formed into conical shape in the same field of endeavor in order to assist in penetration

Reese et al. further teaches wherein said shaped charge liner is incorporated in a liner body which includes an explosive including those as listed by Applicant except for PYX. It is common knowledge in the prior art that PYX is an equivalent explosive to HMX and HSN in the same field of endeavor, the substitution of which would be within ordinary skill in the art.

5. Claims 1, 2, 7, 8, 9, 10 and 15-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reese et al. in view of Sczerzenie et al.

Reese et al. discloses the invention substantially as claimed. Reese et al. discloses a liner for a shaped charge from a mixture comprising:

a high density constituent comprising W; and

a remainder of a low density metal constituent.

Reese et al. further discloses wax added to the mixture (see Table 1).

Reese et al. further discloses wherein the low density metal is selected from a goup comprising Ni.

Reese et al. further discloses wherein said liner is conical.

Reese et al. further discloses wherein said liner is incorporated into a body further comprising an explosive and a booster explosive.

Reese et al. teaches that shaped charge liners are formed into conical shape in the same field of endeavor in order to assist in penetration

Reese et al. further teaches wherein said shaped charge liner is incorporated in a liner body which includes an explosive including those as listed by Applicant except for PYX. It is common knowledge in the prior art that PYX is an equivalent explosive to HMX and HSN in the same field of endeavor, the substitution of which would be within ordinary skill in the art.

Reese et al. further disloses a W amount of 70 to 90%, lower than the amount of 92-97% as claimed by Applicant.

Sczerzenie et al. teaches that W amounts of 95-97% are desirable when forming armor piercing penetrators.

The Examiner finds that Reese et al. is not closed to well penetrators, but more broadly discloses the invention for use in shaped charge liners, thus the teachings being in the same field of endeavor.

It would have been obvious to one having ordinary skill in the art at the time of the invention to use a higher amount of W as taught by Sczerzenie et al. of 95-97% in the invention of Reese et al. in order to improve the penetration in armor piercing applications, the remainder then falling into Applicant's claimed range.

6. Claims 3, 4, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reese et al. in view of Sczerzenie et al. and further in view of US Pat. No. 6,158,351 (Mravic et al.) and Goetzel.

Reese et al. in view of Sczerzenie et al. discloses the invention substantially as claimed (see paragraph 5 above). However, Reese et al. in view of Sczerzenie et al. do not discloses graphite and oil as substitutions for wax.

Reese et al. discloses the invention substantially as claimed (see paragraph 5 above). However, Reese et al. does not disclose substituting oil or graphite for wax as the lubricant.

Mravic et al. further disclose wherein the mixture comprises carbon (graphite) (col. 5, line 64) as a lubricant.

Furthermore, Goetzel teaches that oil is an equivalent to graphite in the same field of endeavor for the purpose of adding lubricant to the mixture.

It would have been obvious to one having ordinary skill in the art at the time of the invention to substitute graphite or oil in place of wax in the invention of Reese et al. as taught by Mravic et al. and Goetzel in order to provide lubrication, since these compounds are taught as lubricant equivalents.

7. Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reese et al. in view of Sczerzenie et al. in view of US Pat. No. 5,913,256 (Lowden et al.).

Reese et al. in view of Sczerzenie et al. discloses the invention substantially as claimed (see paragraph 5 above). However, Reese et al. in view of Sczerzenie et al. do not disclose wherein copper is a part of the binder metal.

Lowden et al. teaches that copper is an equivalent added constituent to the metal binder in the same field of endeavor.

It would have been obvious to one having ordinary skill in the art at the time of the invention to use copper as taught by Lowden et al. in the invention of Reese et al. since these low melting point metals are taught as equivalents.

8. Claims 23, 29, 33, 35, 39, 45, 49, 51, 55 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reese et al. in view of Sczerzenie et al. and further in view of Kock et al. and Oltrogge.

Reese et al. in view of Sczerzenie et al. discloses the invention substantially as claimed (see paragraph 5 above).

Reese et al. further discloses wherein the binder includes lead.

However, Reese et al. in view of Sczerzenie et al. do not disclose wherein the liner further comprises Ta and Mo.

Reese et al. '791 is silent as to the mixture further comprising Mo, but discloses Ni and Co as additional binder materials.

Kock et al. teaches that Mo is an equivalent material to Ni and Co in the same field of endeavor.

Thus, it would have been obvious to substitute molybdenum for cobalt or nickel in the invention of Mravic et al. in view of Reese et al. '791, since the substitution is known as taught Kock et al.

Oltrogge teaches Ta is a high density material that can be used as an equivalent to W in the same field of endeavor (col. 5, line 5 to col. 6, line 32).

It would have been obvious to one having ordinary skill to substitute Ta in part for the tungsten material of Mravic et al. in view of Reese et al., since Oltrogge teaches the equivalence of these materials. The Examiner notes that no weight is given to the characterization of Ta as a binder material.

9. Claims 24, 25, 30, 31, 36, 37, 40, 41, 46, 47, 52, 53, 56, 57, 59 and 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reese et al. in view of Sczerzenie et al. and further in view of Kock et al. and Oltrogge, and further in view of Mravic et al. and Goetzel.

Reese et al. in view of Sczerzenie et al. and further in view of Kock et al. and Oltrogge disclose the invention substantially as claimed (see paragraph 8 above).

However, Reese et al. does not disclose substituting oil or graphite for wax as the lubricant.

Mravic et al. further disclose wherein the mixture comprises carbon (graphite) (col. 5, line 64) as a lubricant.

Furthermore, Goetzel teaches that oil is an equivalent to graphite in the same field of endeavor for the purpose of adding lubricant to the mixture.

It would have been obvious to one having ordinary skill in the art at the time of the invention to substitute graphite or oil in place of wax in the invention of Reese et al. as

taught by Mravic et al. and Goetzel in order to provide lubrication, since these compounds are taught as lubricant equivalents.

10. Claims 32, 34, 38, 48, 50 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reese et al. in view of Sczerzenie et al. and further in view of Kock et al. and Oltrogge and Lowden et al.

Reese et al. in view of Sczerzenie et al. and further in view of Kock et al. and Oltrogge discloses the invention substantially as claimed (see paragraph 8 above).

However, Reese et al. in view of Sczerzenie et al. and further in view of Kock et al. and Oltrogge do not disclose the addition of copper to the binder.

Lowden et al. teaches that copper is an equivalent added constituent to the metal binder in the same field of endeavor.

It would have been obvious to one having ordinary skill in the art at the time of the invention to use copper as taught by Lowden et al. in the invention of Reese et al. since these low melting point metals are taught as equivalents.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Jenkins whose telephone number is 571-272-1242. The examiner can normally be reached on M-TH6:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1242. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel J. Jenkins
Primary Examiner
Art Unit 1742

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